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United States Patent Grants

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Bence Lehman

Commissioner of Patents and Trademarks

Karnal Cooper

Attest



US005413774A

United States Patent [19][11] **Patent Number:** **5,413,774****Schneider et al.**[45] **Date of Patent:** **May 9, 1995**

[54] **LONG-LASTING AQUEOUS DISPERSIONS
OR SUSPENSIONS OF
PRESSURE-RESISTANT GAS-FILLED
MICROVESICLES AND METHODS FOR
THE PREPARATION THEREOF**

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[21] **Appl. No.:** **991,237**

[22] **Filed:** **Dec. 16, 1992**

[30] **Foreign Application Priority Data**

Jan. 23, 1992 [EP] European Pat. Off. 92810046

[51] **Int. Cl.⁶** **A61K 49/00**

[52] **U.S. Cl.** **424/9.51; 128/660.01;**
128/661.02; 128/662.02; 424/9.52

[58] **Field of Search** 424/9; 128/662.02, 660.01,
128/661.02; 530/427

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,276,885	7/1981	Tickner et al.	128/660
4,466,442	8/1984	Hillmann et al.	128/653
4,718,433	1/1988	Feinstein	128/660
5,147,631	9/1992	Glajach et al.	424/9

FOREIGN PATENT DOCUMENTS

131540	7/1984	European Pat. Off. .
324938	12/1988	European Pat. Off. .
327490	2/1989	European Pat. Off. .
458079	4/1991	European Pat. Off. .
458745	5/1991	European Pat. Off. .
WO91/12823	5/1991	WIPO .
WO91/15244	10/1991	WIPO .
WO92/05806	4/1992	WIPO .

OTHER PUBLICATIONS

Epstein et al., J. Chem. Physics, Nov. 1990.

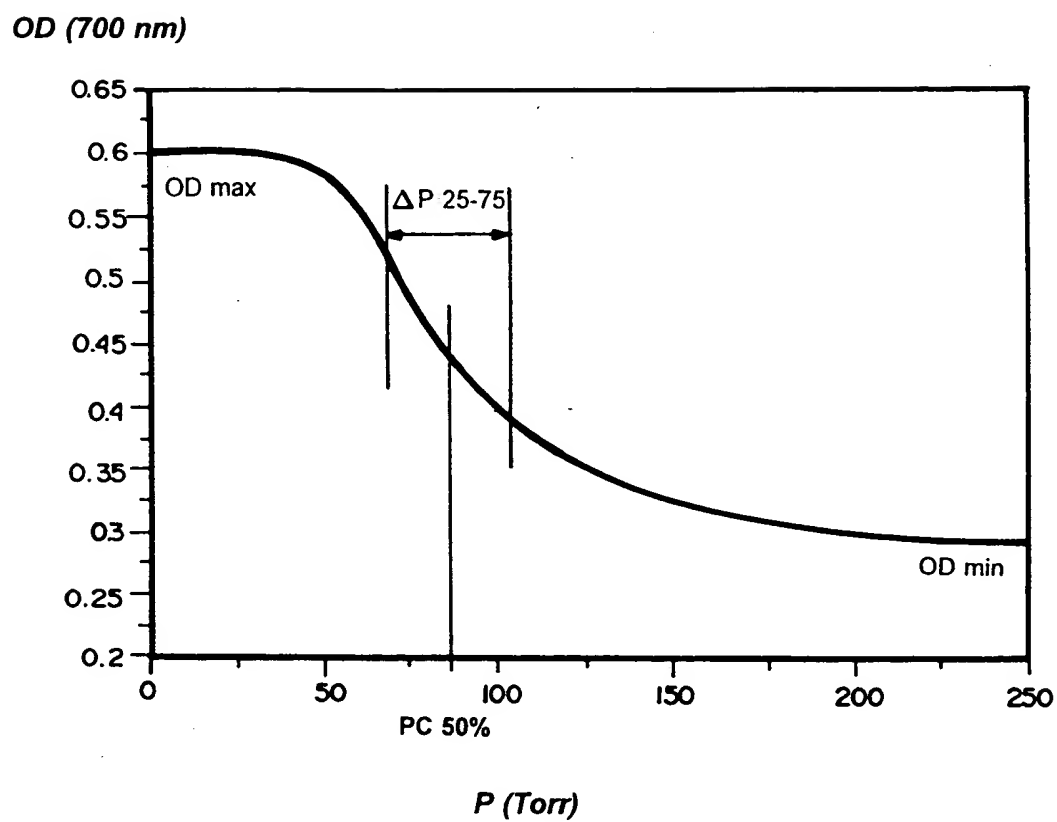
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[57] **ABSTRACT**

One can impart outstanding resistance against collapse under pressure to gas-filled microvesicle used as contrast agents in ultrasonic echography by using as fillers gases whose solubility in water, expressed in liter of gas by liter of water under standard conditions, divided by the square root of the molecular weight does not exceed 0.003.

14 Claims, 1 Drawing Sheet

**Fig. 1**